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Influence of microstructure on laser damage threshold of IBS coatings*

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ABSTRACT

Polarizers deposited by ion beam sputtering with partially polycrystalline HfO_2 layers were found to have a higher damage threshold at 1064 nm than purely amorphous coatings. To understand these findings, single layers of HfO_2 with different microstructures were studied using TEM, ellipsometery, and a photothermal deflection technique. Since the laser damage initiated at defects, the role of thermal conductivity to thermal gradients in nodular defects is also presented.

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